

e1 25. The immune adjuvant composition as claimed in claim 19, wherein the immunostimulatory oligonucleotide comprises one or more non-traditional nucleotides.

26. The immune adjuvant composition as claimed in claim 25, wherein at least one of the one or more non-traditional nucleotides is a phosphorothioate-modified nucleotide.

63. An immune adjuvant composition comprising

- (a) a saponin immunostimulatory adjuvant; and
- (b) an immunostimulatory oligonucleotide comprising at least one unmethylated CpG motif,

e2 wherein the saponin adjuvant comprises substantially pure QS-7, QS-17 or QS-18.

64. A method for increasing the immune response to an antigen to which an immune response is desired in an individual or a test system to which a nucleic acid encoding the antigen is administered comprising administering an effective amount of an immune adjuvant composition as claimed in claim 63.

65. An immune adjuvant composition comprising

- (a) a saponin immunostimulatory adjuvant; and
- (b) an immunostimulatory oligonucleotide comprising at least one unmethylated CpG motif,

wherein the immunostimulatory oligonucleotide comprises one or more non-traditional nucleotides.

66. The immune adjuvant composition as claimed in claim 65, wherein at least one of the one or more non-traditional nucleotides is a phosphorothioate-modified nucleotide.

67. A method for increasing the immune response to an antigen to which an immune response is desired in an individual or a test system to which a nucleic acid encoding the antigen is administered comprising administering an effective amount of an immune adjuvant composition as claimed in claim 65.

e2
cont

68. A method for increasing the immune response to an antigen to which an immune response is desired in an individual or a test system to which a nucleic acid encoding the antigen is administered comprising administering an effective amount of an immune adjuvant composition as claimed in claim 66.

e3

70. A method for increasing the immune response to an antigen to which an immune response is desired in an individual or a test system to which a nucleic acid encoding the antigen is administered comprising administering an effective amount of an immune adjuvant composition as claimed in claim 69.

e3

72. A method for increasing the immune response to an antigen to which an immune response is desired in an individual or a test system to which a nucleic acid encoding the antigen is administered comprising administering an effective amount of an immune adjuvant composition as claimed in claim 71.

e4

73. An immune adjuvant composition comprising
(a) a saponin immunostimulatory adjuvant; and
(b) an immunostimulatory oligonucleotide comprising at least one unmethylated CpG motif, wherein said immunostimulatory oligonucleotide is 4-40 bases in length.

74. A method for increasing the immune response to an antigen to which an immune response is desired in an individual or a test system to which a nucleic acid encoding the antigen is administered comprising administering an effective amount of an immune adjuvant composition as claimed in claim 73.

75. An immune adjuvant composition comprising
(a) a saponin immunostimulatory adjuvant; and
(b) an immunostimulatory oligonucleotide comprising at least one unmethylated CpG motif;

wherein the saponin adjuvant is a non-traditional saponin adjuvant.

76. A method for increasing the immune response to an antigen to which an immune response is desired in an individual or a test system to which a nucleic acid encoding the antigen is administered comprising administering an effective amount of an immune adjuvant composition as claimed in claim 75.

77. The composition of claim 19, wherein the saponin adjuvant is a non-traditional saponin adjuvant.

80. The immune adjuvant composition as claimed in claim 19, wherein the composition increases the immune response to an antigen encoded by a nucleic acid when administered to an individual.

90. A method for increasing the immune response to an antigen to which an immune response is desired in an individual or a test system to which a nucleic acid encoding the antigen is administered comprising administering an effective amount of an immune adjuvant composition as claimed in claim 19.

91. The method as claimed in claim 90, wherein the saponin adjuvant is derived from *Quillaja saponaria*.

92. The method as claimed in claim 91, wherein the saponin adjuvant comprises a substantially pure saponin adjuvant.

93. The method as claimed in claim 92, wherein the substantially pure saponin adjuvant comprises QS-7, QS-17, QS-18, or QS-21.

94. The method as claimed in claim 93, wherein the substantially pure saponin adjuvant comprises QS-21.

95. The method as claimed in claim 90, wherein the immunostimulatory oligonucleotide comprises a CpG motif comprising more than one unmethylated CpG dinucleotide.

96. The method as claimed in claim 90, wherein the immunostimulatory oligonucleotide comprises one or more non-traditional nucleotides.

97. The method as claimed in claim 96, wherein at least one of the one or more non-traditional nucleotides is a phosphorothioate-modified nucleotide.

98. The method as claimed in claim 90, wherein the immunostimulatory oligonucleotide comprises a CpG motif having the formula 5' X_1 CGX₂3', wherein X_1 is adenine, guanine, or thymine, and X_2 is cytosine, thymine, or adenine.

99. The method as claimed in claim 98, wherein the CpG motif comprises TCTCCCAGCGTGCGCCAT (SEQ ID NO:1) or TCCATGACGTTCTGACGTT (SEQ ID NO:2).

elo
Out

100. The method as claimed in claim 90, wherein the individual is an animal.

101. The method as claimed in claim 100, wherein the animal is a mammal.

102. The method as claimed in claim 101, wherein the individual is a human.

103. An immune adjuvant composition comprising

- (a) a saponin immunostimulatory adjuvant;
- (b) an immunostimulatory oligonucleotide comprising at least one unmethylated CpG motif; and
- (c) a nucleic acid molecule comprising a nucleotide sequence that encodes an antigen to which an immune response is desired,

wherein the immunostimulatory oligonucleotide is not a part of the nucleic acid molecule comprising the nucleotide sequence that encodes the antigen and the nucleotide sequence is operatively linked to a promoter.

104. The immune adjuvant composition as claimed in claim 103, wherein the saponin adjuvant is derived from *Quillaja saponaria*.

105. The immune adjuvant composition as claimed in claim 104, wherein the saponin adjuvant comprises a substantially pure saponin adjuvant.

106. The immune adjuvant composition as claimed in claim 105, wherein the substantially pure saponin adjuvant comprises QS-7, QS-17, QS-18, or QS-21.

107. The immune adjuvant composition as claimed in claim 106, wherein the substantially pure saponin adjuvant comprises QS-21.

108. The immune adjuvant composition as claimed in claim 103, wherein the immunostimulatory oligonucleotide comprises a CpG motif comprising more than one unmethylated CpG dinucleotide.

109. The immune adjuvant composition as claimed in claim 103, wherein the immunostimulatory oligonucleotide comprises one or more non-traditional nucleotides.

110. The immune adjuvant composition as claimed in claim 109, wherein at least one of the one or more non-traditional nucleotides is a phosphorothioate-modified nucleotide.

111. The immune adjuvant composition as claimed in claim 103, wherein the immunostimulatory oligonucleotide comprises a CpG motif having the formula 5'X1CGX23', wherein X1 is adenine, guanine, or thymine, and X2 is cytosine, thymine, or adenine.

112. The immune adjuvant composition as claimed in claim 111, wherein the CpG motif comprises TCTCCCAGCGTGCGCCAT (SEQ ID NO:1) or TCCATGACGTTCTGACGTT (SEQ ID NO:2).

113. The method of any of claims 64, 67, 68, 70, 72, 74, 76, or 77, wherein the nucleic acid encoding the antigen is administered to the individual or test system within 0-2 days of the administration of the immune adjuvant composition.